

Audit



Report

OFFICE OF THE INSPECTOR GENERAL

ELECTRONIC COMMERCE RESOURCE CENTERS

Report No. 97-090

February 11, 1997

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Department of Defense

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Acronyms

ANSI	American National Standards Institute
CALS	Continuous Acquisition and Life-Cycle Support
CAMP	Cleveland Advanced Manufacturing Program
CTC	Concurrent Technologies Corporation
DARPA	Defense Advanced Research Projects Agency
DLA	Defense Logistics Agency
EC	Electronic Commerce
ECRC	Electronic Commerce Resource Centers
EDI	Electronic Data Interchange
FACNET	Federal Acquisition Computer Network
MEP	Manufacturing Extension Partnerships



INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
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February 11, 1997

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR ACQUISITION
AND TECHNOLOGY
UNDER SECRETARY OF DEFENSE (COMPTROLLER)
DEPUTY UNDER SECRETARY OF DEFENSE
(LOGISTICS)
ASSISTANT SECRETARY OF THE NAVY (FINANCIAL
MANAGEMENT AND COMPTROLLER)
ASSISTANT SECRETARY OF THE AIR FORCE
(FINANCIAL MANAGEMENT AND COMPTROLLER)
DIRECTOR, DEFENSE ADVANCED RESEARCH
PROJECTS AGENCY
DIRECTOR, DEFENSE LOGISTICS AGENCY

SUBJECT: Audit Report on Electronic Commerce Resource Centers
(Report No. 97-090)

We are providing this audit report for review and comment. Management comments to a draft of this report were requested, but were not received and thus are still needed.

DoD Directive 7650.3 requires that all recommendations be resolved promptly. Because the Deputy Under Secretary of Defense (Logistics) did not comment on a draft of this report, we request that the Deputy Under Secretary of Defense (Logistics) provide comments on the final report by March 12, 1997.

We appreciate the courtesies extended to the audit staff. Questions on the audit should be directed to Ms. Kimberley A. Caprio, Audit Program Director, at (703) 604-9210 (DSN 664-9210) (KCaprio@DODIG.OSD.MIL) or Ms. Addie M. Beima, Audit Project Manager, at (703) 604-9231 (DSN 664-9231) (ABeima@DODIG.OSD.MIL). See Appendix I for the report distribution. The audit team members are listed inside the back cover.

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Report No. 97- 090
(Project No. 6CA-0002)

February 11, 1997

Electronic Commerce Resource Centers

Executive Summary

Introduction. The Electronic Commerce Resource Centers (ECRC) Program is a DoD funded network of centers established to help small- and medium-sized enterprises (vendors) and Government organizations implement and use electronic commerce technologies. The ECRC program focuses on vendors who are conducting or want to conduct business with DoD. The ECRC program is composed of 11 regional centers, 2 team integrators, and 1 ECRC technology hub. The regional ECRCs help vendors and Government organizations learn about and adopt electronic commerce technologies through outreach, education and training, consultation, and technical support. The team integrators communicate, coordinate, plan, and oversee the operations of the regional ECRCs. The technology hub coordinates, develops, and validates needed electronic commerce technology and makes it available to the regional ECRCs. Congress appropriated \$108.6 million for ECRC program activities from FYs 1993 through 1995, and DoD budgeted \$83.7 million for the ECRC program FYs 1996 through 1998, \$15 million of which is to establish 5 new ECRCs. First the Air Force then the Defense Advanced Research Projects Agency were responsible for management and oversight of the ECRC program until October 1, 1996. In FY 1997, the ECRC program was transferred, by direction of Congress, to the Deputy Under Secretary of Defense (Logistics) and management and oversight was delegated to the Defense Logistics Agency.

Audit Objectives. The primary audit objective was to review the management of the ECRCs. Specifically, we sought to determine whether the ECRC program provided efficient and cost-effective training and outreach to Government vendors on the implementation and use of electronic commerce/electronic data interchange (EC/EDI) technologies. Another audit objective was to evaluate the adequacy of the management control program as applicable to the ECRC program. However, we did not review the management control program because ongoing Inspector General, DoD, Project No. 5AB-0052, "Audit of the Management and Administration of Research Projects Funded by the Defense Advanced Research Projects Agency," will discuss the adequacy of the Defense Advanced Research Projects Agency management control program.

Audit Results. The ECRC program has not been efficient or cost-effective in promoting the implementation or increased use of EC/EDI technologies between Government organizations and vendors. Ninety-one percent of the customers that received ECRC support did not implement or increase their use of EC/EDI technologies to conduct business with the Federal Government. As a result, DoD obligated approximately \$81.5 million for FY 1994 through the first quarter of FY 1996 that did not greatly increase the implementation and use of EC/EDI technologies. The \$81.5 million obligation resulted in outreach, training, or consultation with 12,764 ECRC customer organizations but about 1,102 increased their use of EC/EDI technologies. Averaging that cost over the 1,102 organizations, DoD spent about \$74,000 for each organization that implemented or increased its use of EC/EDI to do business with the Government. Averaging the \$81.5 million over the

entire 12,764 organizations, DoD spent about \$6,400 on each organization even though 91 percent of them may not implement or increase their use of EC/EDI in the future. In addition, about 34 percent of FYs 1995 and 1996 ECRC budgets were consumed by administrative and non-core function activities. See Part I for a discussion of the audit results.

Summary of Recommendations. We recommend that the Deputy Under Secretary of Defense (Logistics) seek additional time to implement the congressional direction to establish five new ECRC sites. We also recommend that the Deputy Under Secretary of Defense (Logistics) streamline the multi-layered ECRC management structure; re-evaluate contracts used to acquire ECRC support and justify related contract fees; redirect the ECRC program with focus on getting DoD procurement offices and vendors to use EC/EDI technologies; establish contractor performance measures; establish a Government-wide EC/EDI Integrated Process Team to optimize collaborative efforts; coordinate ECRC efforts with Defense Logistics Agency managed Procurement Technical Assistance Center efforts; and seek authorization to eliminate the congressionally-directed ECRC technology hub.

Management Comments and Audit Response. The Deputy Under Secretary of Defense (Logistics) did not respond to a draft of this report. Therefore, we request the Deputy Under Secretary of Defense (Logistics) to provide comments by March 12, 1997.

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Part I - Audit Results

Audit Background

Electronic Commerce/Electronic Data Interchange. Electronic commerce (EC) is the paperless exchange of business information using technologies such as electronic mail, computer bulletin boards, and electronic data interchange (EDI). EDI is integral to electronic commerce in that it is the computer-to-computer exchange of business information using a standardized electronic format.

The Federal Acquisition Streamlining Act of 1994. The Federal Acquisition Streamlining Act (the Act) simplified and streamlined the Federal acquisition process by requiring the Government to transition from a labor-intensive, paper-based acquisition process to a more efficient process using EC/EDI technologies. The Act further emphasized the need for small- and medium-sized enterprises (vendors) to migrate toward EC, and encouraged the use of the Federal Acquisition Computer Network (FACNET) to conduct small purchases electronically. FACNET is an EC/EDI communications network being developed to enhance access to DoD procurement information for vendors, and to provide a standard format for the exchange of acquisition information between Federal Government agencies and vendors. The Act requires FACNET to be implemented Government-wide no later than January 2000 (the Act originally required that FACNET be implemented by January 1997).

Electronic Commerce Resource Centers Program. The Electronic Commerce Resource Centers (ECRC) Program (formerly known as the Continuous Acquisition and Life-cycle Support (CALS) Shared Resource Center Program) is a DoD-funded network of centers established to help vendors and Government organizations implement and use EC/EDI technologies. Specifically, the ECRCs are to work with DoD vendors; vendors to large DoD prime contractors or their supplier network; and vendors involved in manufacturing who want to do business with DoD, other Federal Government organizations, or with companies that do business with the Federal Government.

The ECRC program consists of 11 regional ECRCs, 2 team integrators, and 1 technology hub. The mission of the regional ECRCs is to help vendors and Government organizations learn and adopt EC/EDI technologies through outreach, education and training, consultation, and technical support activities (referred to by the ECRCs as core functions). The two team integrators, Concurrent Technologies Corporation (CTC), and the Cleveland Advanced Manufacturing Program (CAMP), coordinate, plan, and oversee operation of the regional ECRCs on their respective teams. CTC is responsible for six regional ECRCs and CAMP is responsible for five regional ECRCs. CTC also operates the technology hub (the hub) for the ECRC program. The hub is supposed to coordinate, develop, and validate technologies to solve problems preventing the implementation and use of EC/EDI. The hub is also supposed to provide solutions to the regional ECRCs who, in turn, distribute the solutions to vendors and Government organizations.

ECRC Program History. In FY 1991, Congress established the first ECRC at Johnstown, Pennsylvania, and directed the Air Force to serve as the program

executive agent. Between FYs 1992 and 1995, Congress established and designated the specific locations of 10 additional ECRCs. In FY 1991, Congress designated the ECRC program a "congressional special interest program," which means that program funds cannot be reduced without prior approval from Congress. Congress also required DoD to award sole-source contracts to three contractors to operate five of the ECRCs. Figure 1. shows the geographic locations of the 11 ECRCs and denotes the regions in which they operate.

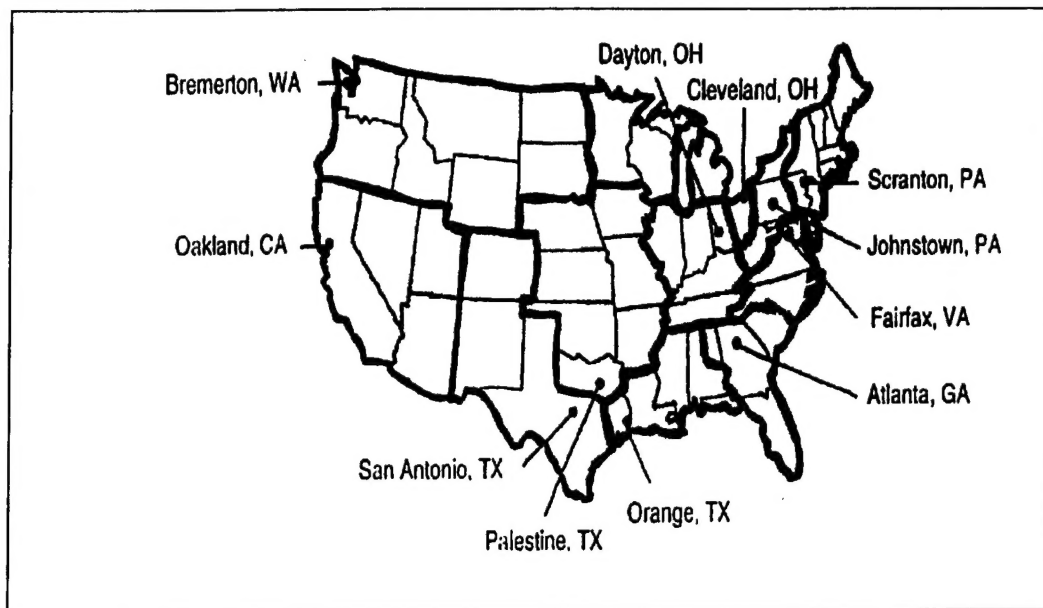


Figure 1. Geographic Locations and Regions of the 11 ECRCs

In FY 1994, Congress transferred ECRC management and oversight responsibilities to Defense Advanced Research Projects Agency (DARPA). DARPA renamed the Continuous Acquisition and Life-cycle Support Shared Resource Center program "the ECRC program" to further emphasize EC and to focus the program on helping vendors to implement and use EC/EDI technologies. Congress also directed DARPA to establish the hub. In 1995, in committee reports accompanying the FY 1996 DoD Appropriations Act, Congress directed that DoD transfer ECRC program management to the Defense Logistics Agency (DLA), beginning in FY 1997. Subsequently, Congress reaffirmed its support for management oversight of the program by the Deputy Under Secretary of Defense (Logistics), in the Conference Report accompanying the Omnibus Consolidated Appropriations Act for FY 1997, in order to fully capitalize on and expand the use of EC technologies. The Deputy Under Secretary of Defense (Logistics) delegated ECRC program management responsibilities to DLA.

ECRC Program Funding. The ECRC program is funded within the Research, Development, Test, and Evaluation Defense appropriation. The ECRC program is forward funded, which means that prior year funds are used to pay current year expenses. For example, FY 1997 contracts will be funded by amounts

Audit Results

budgeted in FY 1996. As a result, FY 1996 ECRC funds will not be obligated until the FY 1997 ECRC contracts are awarded. Table 1 shows ECRC funding by Fiscal Year.

Table 1. ECRC Funding by Fiscal Year (Funds in Millions)			
Fiscal Year	Budgeted Amount	Authorized Amount	Obligated Amount
1993	--	\$ 31.9	\$ 31.6
1994	--	\$ 43.0	\$ 42.8
1995	--	\$ 33.7	\$ 30.6
1996	\$33.0	--	--
1997	\$35.7	--	--
1998	\$15.0	--	--
Total	\$83.7	\$108.6	\$105.0

DoD obligated approximately \$105 million of the \$108.6 million authorized for ECRC program activities from FYs 1993 through 1995, and Congress budgeted \$83.7 million for the ECRC program for FYs 1996 through 1998. Of the \$83.7 million budgeted for FYs 1996 through 1998, the "Omnibus Consolidated Appropriations Act, 1997," authorized \$15 million for the establishment and operation of five additional regional ECRCs during FY 1997.

Audit Objective

The overall objective was to evaluate the management of the ECRCs. The specific objective was to determine whether the ECRC program provided efficient and cost-effective training and outreach to Government vendors on the implementation of EC/EDI technologies. See Appendix A for a discussion of the audit scope and methodology. See Appendix B for a summary of prior audit coverage related to the audit objectives.

ECRC Program Effectiveness

To date, the ECRC program has not been efficient or cost-effective in promoting the implementation or increased use of EC/EDI technologies between Government organizations and vendors. DoD spent about \$74,000 on the average for each organization that implemented or increased its use of EC/EDI. The ECRC program is not efficient or cost-effective because:

- o About 8.6 percent of the organizations that received ECRC support implemented or increased their use of EC/EDI technologies to conduct business with the Federal Government.

- o ECRC core functions overlap services that are available elsewhere.

- o The technology hub did not develop or provide any unique solutions to vendors' EC/EDI implementation problems.

- o The program infrastructure consumed about 34 percent of the ECRC budget for program management and non-core function activities.

- o Congress shifted organizational control of the program and allowed a significant level of contractor autonomy that impeded DoD's ability to manage this program.

- o ECRC contracts did not provide incentive for contractors to use efficient, cost-effective methods and practices.

As a result, DoD obligated approximately \$81.5 million from FY 1994 through the first quarter of FY 1996 but did not significantly increase the implementation and use of EC/EDI technologies. In addition, Congress earmarked \$83.7 million for FYs 1996 through 1998 to continue the ECRC program.

ECRC Program

In May 1988, the Deputy Secretary of Defense emphasized the importance of EDI in a memorandum, "Electronic Data Interchange of Business-Related Transactions," which stated that EDI was to become the "way of doing business" for DoD in the future. In 1991, Congress established the ECRC program to help DoD realize the Deputy Secretary's vision. According

ECRC Program Effectiveness

to the ECRC Program Operational Plan, March 22, 1995, overall program success will ultimately be determined by the impact that the ECRC program has on achieving DoD's goal of using EC/EDI to conduct business.

ECRC Focus

Focus of ECRC Program. The ECRCs focus on helping small- and medium-sized vendors to use EC/EDI technologies to conduct business when most government buying activities and prime contractors are not using EC/EDI. The Deputy Under Secretary of Defense (Logistics) needs to focus ECRC efforts on creating a business case to clearly and realistically demonstrate to vendors the economic advantages of using EC/EDI. Until the Government and prime contractors convert to using EC/EDI technologies to do business, and require small- and medium-sized vendors to use it as well, efforts to teach vendors how to use EC/EDI technologies are premature.

Director, DoD Electronic Commerce, Efforts. The Director, DoD Electronic Commerce, is working with DoD buying activities and prime contractors to establish incentives for small- and medium-sized vendors to use EC/EDI technologies. To accomplish this, the Director is educating the major DoD buying activities and prime contractors about EC practices and methods, including EC/EDI technologies, and the benefits of converting to EC. Once these buying activities convert to EC, they can require their suppliers to convert to using EC/EDI technologies as well. That should encourage those wishing to continue to do business with DoD and its prime contractors to implement EC/EDI technologies. The ECRCs can assist the Director, DoD Electronic Commerce, by educating DoD buying activities and prime contractors to help them adopt EC/EDI technologies.

ECRC Core Functions

The ECRC program established the following core functions to accomplish its mission: outreach, education and training, consultation, and technical support.

Outreach. Regional ECRCs conduct outreach events to make vendors aware of the ECRCs as a source of assistance for learning about and using EC/EDI technologies. Outreach events include trade shows, seminars, conferences, and technology demonstrations.

Education and Training. Regional ECRCs provide EC/EDI training courses to vendors and Government organizations. Education and training events include exhibits at symposia and classroom-type courses on EC/EDI concepts and use. The ECRCs offer 12 courses, 4 of which address EC/EDI topics. According to ECRC officials, the other 8 courses pertain to non-EC/EDI topics

such as technical data exchange, document management, and business process improvements. The courses are offered free of charge or at a nominal fee to cover the cost of materials.

Consultation. Regional ECRCs offer a consultation service to help vendors develop an understanding of their needs and operations, and to identify problems that can be resolved by EC/EDI technologies.

Technical Support. Regional ECRCs provide up to 80 hours of technical support to vendors to help them implement or increase their use of EC/EDI technologies. Technical support events include discussions with customer organizations about how to obtain value added network services, conducting needs analyses, or recommending which hardware and software vendors should buy to implement EC/EDI. ECRC officials consider telephone conversations to be either outreach or consultation.

Effectiveness of ECRC Core Functions

To measure the effectiveness of core functions, regional ECRCs track the number of core functions performed (activity metrics) and document successful implementations of EC/EDI technologies (impact metrics). We determined that ECRC core functions did not result in significant implementation or increased use of EC/EDI technologies by its target audience.

ECRC Activity Metrics. We reviewed ECRC activity metrics and contacted a statistical sample of ECRC customer organizations. We determined that 60 percent of ECRC activity metrics were reliable for audit purposes and a projected 8.6 percent of ECRC customers received effective ECRC support. See Appendix D for reliability of ECRC activity metrics.

ECRC Impact Metrics. We also reviewed ECRC impact metrics (success stories) and contacted a judgmental sample of ECRC customer organizations: 13 percent of ECRC impact metrics were reliable and 3 out of the 10 customers we contacted had valid "success stories." See Appendix E for reliability of ECRC impact metrics.

Plans to Redefine Performance Metrics. DLA officials acknowledged that existing ECRC performance metrics did not accurately measure program effectiveness. According to the DLA ECRC Program Manager, DLA intends to redefine the performance measures and base them on program outcomes. For example, DLA proposes to measure the effectiveness of core functions based on the number of vendors that implement EC/EDI technologies after receiving ECRC core function support, rather than on the number of individuals that receive support. The Deputy Under Secretary of Defense (Logistics) needs to establish controls to ensure that ECRC program performance metrics are accurately tracked and reported. Additionally, the Deputy Under Secretary of Defense (Logistics) should clearly define the ECRC target audience as

ECRC Program Effectiveness

Government buying activities and their trading partners and focus the ECRCs on helping them convert to EC/EDI business practices and methods to maximize the benefits of ECRC efforts.

Redefine Core Functions. If the ECRC program is to be of significant benefit, the Deputy Under Secretary of Defense (Logistics) needs to redirect the activities of the ECRCs. The ECRCs need to focus on helping DoD address solutions to the current impediments to the use of EC/EDI. The ECRCs need to focus on helping DoD buying activities and prime contractors learn how to use EC/EDI technologies. They also need to focus on helping small- and medium-sized vendors to understand the business case and economic advantages to using these technologies. Once the ECRC focus is redirected and their functions are redefined, DoD ECRC program managers need to establish performance measures with which to periodically evaluate and report on program effectiveness.

Overlap of ECRC Core Functions

ECRC services duplicate the EC/EDI services that already exist, and are funded by DoD, other Government organizations, and private industry. In addition to funding the ECRCs, the Federal Government spends about \$166 million annually to fund 109 Procurement Technical Assistance Centers, 1,006 Small Business Development Centers and sub-centers, and 60 Manufacturing Extension Partnerships (MEPs). Like the ECRCs, the majority of these 1,175 centers provide education and training, including how to implement and use EC/EDI technologies, at little or no cost to recipients.

Procurement Technical Assistance Cooperative Agreement Program. In 1985, Congress established the Procurement Technical Assistance Cooperative Agreement Program to provide assistance to vendors in marketing goods and services to DoD organizations, and designated DLA as the program manager. The Procurement Technical Assistance Centers provide outreach, counseling, marketing opportunities, and EC/EDI assistance to vendors. The FY 1997, National Defense Authorization Act re-emphasized the use of Procurement Technical Assistance Centers to implement EC initiatives under the Federal Acquisition Streamlining Act of 1994.

Small Business Development Centers. The Small Business Administration initiated the Small Business Development Centers as a pilot project in FY 1977. In FY 1980, Congress established the Small Business Development Centers Program to provide vendors with free outreach, management, technical support, training, and research assistance. Like the ECRCs, the Small Business Development Centers provide EC/EDI training to vendors.

Manufacturing Extension Partnerships. In FY 1988, Congress established the MEP program within the Department of Commerce, National Institute of Standards and Technology, to provide technical assistance to vendors to improve their operations through the use of advanced technologies. The program consists of 60 centers that offer a wide range of business services. Like the ECRCs, the MEPs assist vendors in implementing EC/EDI technologies. In responding to the FY 1994 DoD Appropriations Act requirement that DoD justify continuing the MEP program, the Director, DARPA, stated that when the MEP Program matures in FY 1997, it will assist vendors in adopting new technologies to meet commercial and defense needs. Therefore, in FY 1997, the ECRC mission to provide outreach, education and training, consultation and technical support to vendors will have been largely transferred to the MEP Program. Figure 2 shows the EC outreach locations.

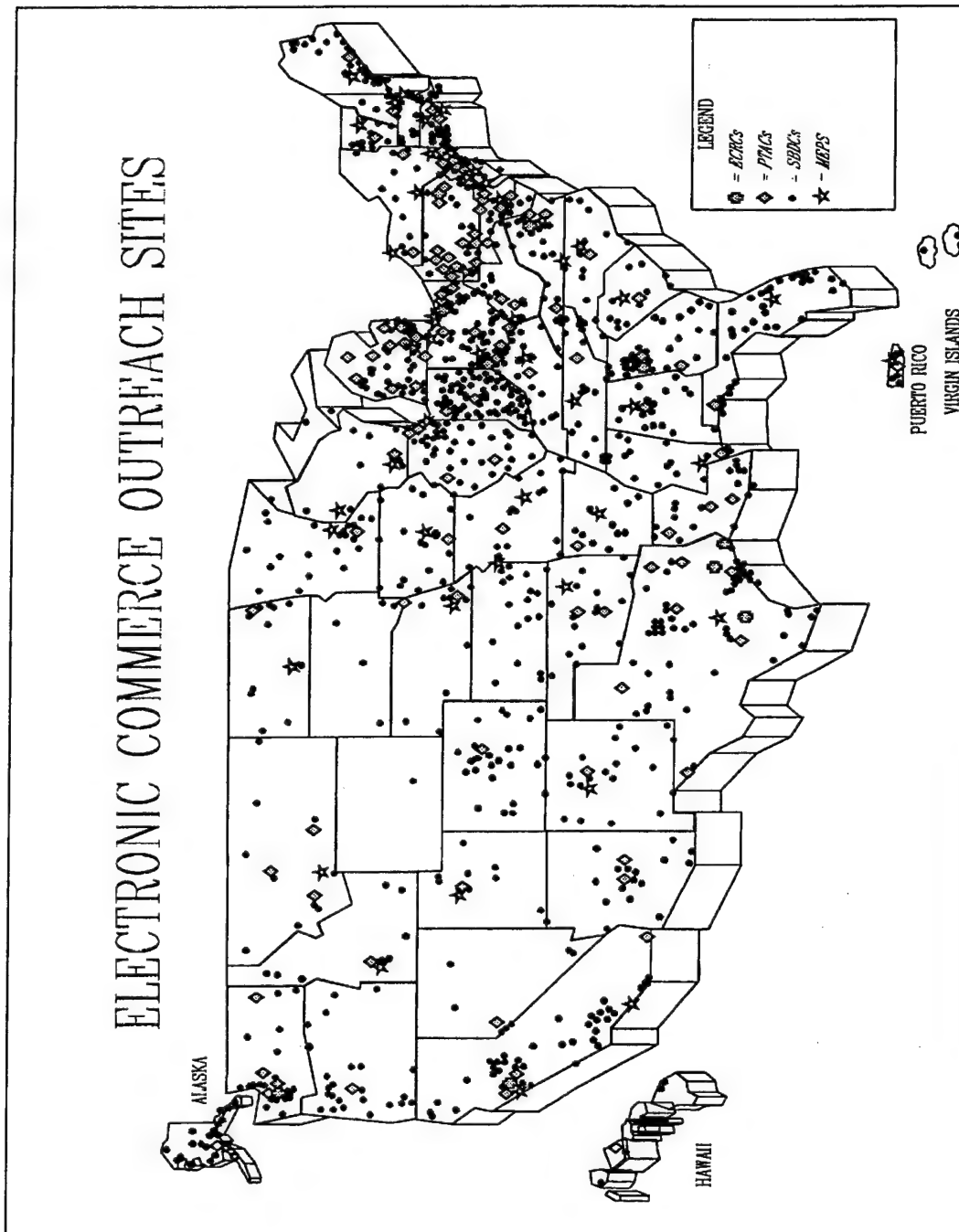


Figure 2. Electronic Commerce Outreach Sites

Private Industry Sources of EC/EDI Support. We also identified a sample of 10 private sector sources that offer EC/EDI training and support similar to that provided by the ECRCs. The private sources include individual contractors and national associations that offer assistance at various fees.

Significance of Alternative Sources. The services provided by the ECRCs duplicate those provided by other organizations that are already in place and have existing relationships with Government vendors. Furthermore, DoD officials have been aware of the overlapping nature of the ECRC core functions for some time. In 1993, Air Force officials asked the Cleveland ECRC to examine similarities between MEP and ECRC core functions, and identify ways to minimize the duplication. The subsequent report, "CSRC-Manufacturing Technology Center Study Task Order," December 26, 1993, concluded that the scopes, objectives, activities, and technology focus of the two programs were duplicative, and recommended that the programs be coordinated to reduce unnecessary duplication.

Opportunity to Coordinate ECRC Core Functions. The Deputy Under Secretary of Defense (Logistics) has an opportunity to eliminate overlap between the various organizations providing EC/EDI outreach and training. The Defense Logistics Agency, as program manager for the Procurement Technical Assistance Cooperative Agreement Program and ECRCs, should analyze the functions of the two programs and coordinate EC/EDI efforts to eliminate duplication. The Defense Logistics Agency should also establish a Government-wide electronic EC/EDI Integrated Process Team to coordinate ECRC activities with other Government programs having similar missions. At a minimum, the Integrated Process Team should attempt to include representatives from the Office of Federal Procurement Policy, the Department of Commerce, the Small Business Administration, the General Services Administration, the DoD Electronic Commerce, the Defense Finance and Accounting Service, and the Military Departments.

Technology Hub Initiatives

DARPA officials considered the hub concept to be flawed and hub initiatives generally not of significant value to DoD. CTC asserted the need for the hub, and in FY 1994, Congress established the hub under CTC, and collocated it with the Johnstown ECRC and team integrator. The purpose of the hub was to identify, or develop, and deploy new or existing technologies to resolve problems preventing Government organizations and vendors from using EC/EDI, and to serve as a source of EC/EDI information for regional ECRCs. In addition to identifying the requirement for the hub, CTC determined its mission, identified initiatives to accomplish the mission, and proposed the initiatives to the DoD ECRC program office for approval. We conducted a technical review of hub initiatives and, like DARPA, found none of the initiatives to be of significant value to DoD. The combined budget for the 15 initiatives was \$15.8 million for FYs 1994 through 1995.

Hub Initiatives. The hub undertook seven initiatives in FY 1995 and eight initiatives in FY 1996. All but one of the 15 initiatives were self-initiated by CTC. The remaining initiative was recommended by the ECRC Contracting Officer's Technical Representative. According to the DARPA ECRC program manager, when DoD did not approve the CTC-proposed initiatives, Congress

mandated them. For example, the first four hub initiatives were directed in the House of Representatives, "Report of the Committee on Appropriations," which accompanied the FY 1994 DoD Appropriations Act.

Analysis of Hub Initiatives. DARPA and the Office of Inspector General, DoD, independently concluded that the hub initiatives were of little or no value in meeting DoD EC/EDI goals.

DARPA Analysis of Hub Initiatives. In a February, 1996, brief to Inspector General, DoD, auditors, DARPA ECRC program officials opined the hub concept is flawed and, generally, the hub initiatives were not of significant value to DoD. Specifically, DARPA considered the hub concept flawed as a means of technology development. DARPA ECRC program officials thought there would be no need for the hub if normal competitive procedures were used to pursue development (a more effective procedure for this purpose), and the other hub functions were folded into team integrator and core function tasks. DARPA officials thought that, where hub activities were worth pursuing, there were better ways to accomplish them. Also, even though the focus of the ECRCs was redirected from CALS to EC/EDI in FY 1994, 8 of the 15 FYs 1995 and 1996 hub initiatives focused on CALS issues.

Audit Analysis of Hub Initiatives. We performed a technical review of the 15 hub initiatives. The purpose of the review was to determine if the initiatives had merit and met the objectives of the hub. The objective of the hub was to identify new or existing technologies to resolve vendor and Government organizations' impediments to implementing EC/EDI. The technical review concluded that none of the initiatives provided technologies that were not already available within the marketplace, and that funds expended on the hub could be put to better use. In addition, at least 3 of the initiatives were functions that should have been conducted directly under the ECRCs, and not the hub. The following are examples of questionable initiatives. See Appendix F for a discussion of the remaining hub initiatives.

CALS Exposition. The hub spent \$594,574 to plan and develop ECRC exhibits for FYs 1994 and 1995 CALS expositions. In addition, the hub budgeted \$290,265 for the FY 1996 CALS exposition. These projects were self-initiated. The exhibits included a kiosk, handouts from each of the regional ECRCs, and a computerized presentation about the ECRCs. Such an initiative should have been funded under the ECRC program directly. Further, this initiative did not achieve the hub objective of identifying technologies to assist in implementing EC/EDI. Rather, the initiative served as a marketing tool for the ECRCs.

Collaborative Application Protocol Development Initiative. The hub spent \$1.1 million in FY 1995 to identify methods to expedite development of application protocols for the "Standards for the Exchange of Product Model Data (STEP)." The House Appropriations Committee, in its report on the 1994 DoD Appropriations Bill, directed the establishment of this initiative. The purpose of STEP is to provide standard formats for representing and exchanging information about any product during all phases of the product's life cycle, including the transfer of technical data between organizations using different

software packages, hardware, and operating systems. According to DoD program officials, this initiative did not contribute to the ECRC program because it focused on manufacturing processes and issues rather than on the EC/EDI needs of vendors. Further, the Inspector General, DoD, technical review concluded that this initiative duplicated National Institute of Standards and Technologies efforts and attempted to develop a standard that industry has not seen fit to create on its own. The hub ended this initiative in FY 1995 without producing anything beneficial to vendors or DoD.

Value of Hub. The stated purpose of the hub was to identify new or existing technologies that could resolve problems Government organizations and vendors were having in implementing EC/EDI technologies, and to act as a source of EC/EDI information for the regional ECRCs. However, based upon the technical assessment of the initiatives, we question whether DoD funds are being used efficiently. The initiatives have not identified solutions or resolved problems. In addition, the initiatives were not based on vendor or Government EC/EDI needs.

DoD expended approximately \$15.8 million authorized for FYs 1994 and 1995 to fund hub initiatives. Additional funds will be expended to continue these initiatives for FYs 1996 through 1998, however, hub funding has not been broken out. Our analysis supported DARPA's conclusion that the hub initiatives are not of significant value. In our opinion, the hub has not demonstrated that it has accomplished its objectives and provided useful tools to vendors or Government organizations to solve EC/EDI problems. Therefore, we believe the Deputy Under Secretary of Defense (Logistics) should seek authorization to eliminate the congressionally-directed ECRC technology hub.

ECRC Program Infrastructure

Ten Government and private industry organizations as well as subcontractors participate in ECRC program management, oversight, and execution. Four of the ten Government and private industry organizations involved in program infrastructure used almost 34 percent, or \$25.7 million of the \$76.7 million, of the FYs 1995 and 1996 ECRC budget for program management and ECRC non-core functions. The four organizations and the related amounts were as follows: Concurrent Technologies Corporation used \$15.8 million to operate the hub; DARPA used \$7.6 million to fund technology projects and acquire planning and oversight support; and the two team integrators used \$2.3 million collectively to plan, oversee, and coordinate regional ECRC activities. These expenditures were largely unnecessary, added little or no benefit to the ECRC program, and detracted from the regional ECRC's ability to provide core function support.

DLA Plans Program Infrastructure. DLA officials plan to initially continue the multi-layered ECRC program management structure, including the Institute for Defense Analyses, Fleet Industrial Supply Center, Production Technology, Incorporated, and the team integrators. DLA officials plan to review program management and oversight for possible restructuring at a later date. We believe

the functions performed by these organizations would be better accomplished by the DLA ECRC program office. Costs associated with the necessary program management and oversight functions total only \$1.8 million for FYs 1994 and 1995, including the Contractor Technical Representative function accomplished by the Naval Industrial Resources Support Activity.

Shift of Organizational Control. The multi-layered ECRC program infrastructure resulted from congressional direction and DARPA delegation of program management and oversight responsibilities. Congress shifted management responsibility among DoD organizations and designated ECRC locations, contractors, and projects. Congressional direction also provided a significant level of autonomy to contractors. The shifting of organizational control and the significant level of contractor autonomy inhibited DoD's ability to manage the program.

For purposes of discussing the efficiency and cost-effectiveness of ECRC program infrastructure, we focused on FYs 1995 and 1996, a period in which DARPA managed the program, and related budgets totaling \$76.7 million. A brief discussion of the responsibilities of each component of the infrastructure is included in Appendix C. The chart in Appendix C presents a breakout of the \$76.7 million in funding for FYs 1994 through 1995 as allocated across the ECRC program infrastructure.

Constraints on ECRC Program Flexibility

We believe that this program can be made more effective if DoD is allowed to exercise more discretion in its management, including the authority to establish and close ECRCs, to select contractors through the competitive process, and to determine which Departmental agency will have overall program responsibility. As this program has developed, many of these normal management decisions have been made by Congress. For example, Congress:

- o shifted ECRC program management responsibility from Air Force to DARPA, to DLA, to the Deputy Under Secretary of Defense (Logistics);
- o designated CTC and CAMP as ECRC sole-source contractors and identified their responsibilities;
- o designated the locations of the regional ECRCs, including reestablishing the Orange, Texas ECRC location;
- o directed that CTC establish and maintain a technology hub even though there was no clearly defined need for a hub function;
- o designated at least 4 of the 15 initiatives performed by the hub, the first of which was to identify a need for the hub; and

o directed the establishment of five new ECRCs in FY 1997 even though the contribution of the existing ECRCs to acquisition reform efforts was limited.

Those constraints reflected congressional dissatisfaction with DoD administration of the program.

Air Force Management of the ECRC Program. In FY 1991, Congress designated the Air Force as the ECRC program manager. To respond to congressional interest and quickly establish the ECRC program, the Air Force prepared an initial contract with CTC that contained a broad statement of work with few deliverables, and limited Air Force involvement in program management. When Air Force revised the CTC contract statement of work to clearly define Air Force and CTC roles and responsibilities, CTC vigorously resisted the changes. Specifically, according to Air Force officials, CTC officials stated that the "Air Force was to fund CTC," and "should not attempt to manage the program." Further, CTC officials stated that "CTC was not interested in being the Air Force's support contractor or hired help, and that CTC would provide Air Force with the results of CTC-selected initiatives."

Congress directed the Air Force to award sole-source follow-on contracts to CTC and I-Net, Incorporated. In an October 7, 1993, memorandum to the Senate Appropriations Committee, the Deputy Assistant Secretary of the Air Force, Communications, Computers, and Support Systems, stated that, if the Air Force was not allowed to control and manage the ECRC program and exercise authority over ECRC funding, they would prefer that ECRC funding be given to the Office of the Secretary of Defense instead of the Air Force.

Congress transferred ECRC program management responsibility from the Air Force to ARPA (now DARPA) in the FY 1994 DoD Appropriations Act. In House Report No. 103-254, accompanying the legislation, the committee stated that "the Air Force repeatedly altered congressional intent in the implementation of the ECRC program." The Report further stated that the Air Force refused to establish the ECRCs as the tri-service CALS standards and technologies development, deployment, training, and education hub (designate CTC as the center of excellence for electronic technology). Also, the Air Force had not established an ECRC in Palestine, Texas, as directed by Congress. Instead they had redirected congressionally-earmarked ECRC funds to establish and operate an activity to convert existing (legacy) weapons systems documents into electronic form. The Air Force considered legacy data conversion more beneficial to achieving DoD's EC/EDI objectives than establishing another regional ECRC to train organizations that may or may not use EC/EDI to do business with the Government in the future.

Prior to establishment of the ECRCs, the Air Force CALS budget averaged about \$20 million a year. Subsequent to establishment of the ECRC program, the annual Air Force CALS budget grew to about \$50 million. When the ECRC program was moved to DARPA, Congress reduced the Air Force CALS budget from \$50 million to \$2.3 million, effectively eliminating the Air Force CALS program.

DARPA Management of the ECRC Program. Upon receiving the ECRC program from Air Force in FY 1994, DARPA reduced funding for the hub by about \$2 million and tried to shift the ECRC focus from CALS initiatives toward EC/EDI functions. Although the DARPA ECRC program manager believed hub activities could be better performed by competitively selected contractors, congressional direction explicitly precluded this. Also, because the hub was congressionally mandated, DARPA could not abolish it even though they considered the majority of the hub initiatives to be of little value.

DLA Management of the ECRC Program. In the FY 1996 DoD Appropriations Act, Congress transferred ECRC program management to DLA in FY 1997, stating that the move to DLA will better integrate the EC needs of DoD and its suppliers. Subsequently, Congress directed in the Conference Report accompanying the Omnibus Consolidated Appropriations Act for FY 1997, that the ECRC program be moved under the Deputy Under Secretary of Defense (Logistics). However, the Deputy Under Secretary of Defense (Logistics) does not have the staff to oversee the ECRC Program. As a result, the Deputy Under Secretary of Defense (Logistics) delegated program management responsibilities to DLA.

Contracting Methodology

The contracting methods DoD used to acquire ECRC support were not in the Government best interest because they did not provide incentive for contractors to use efficient, cost-effective methods and practices. Also, the contracting method used exposed DoD to the greatest degree of risk and resulted in CTC and CAMP being paid fees totaling approximately \$900,000 from FYs 1994 through 1996 that were not adequately justified.

Contract Type Selection. Federal Acquisition Regulation, Subpart 16.103, "Selecting Contract Types," Section 103, states that the type of contract used should result in reasonable contractor risk while providing the contractor with the greatest incentive for efficient and economical performance. Cost-reimbursement-type contracts such as cost-plus-award-fee and cost-plus-fixed-fee are appropriate, when uncertainties in contract performance do not permit costs to be estimated with sufficient accuracy to use fixed-price contracts. Cost-reimbursement-type contracts should be used only when Government oversight ensures efficient contract monitoring and effective cost control. Contracting officials should reevaluate the appropriateness of the contract type used as a program matures, and change the contract type when experience provides a basis for firmer pricing.

Contract Methods Used to Acquire ECRC Support. In FYs 1991 through 1993, Congress directed the Air Force to award sole-source contracts to CTC and I-Net, Incorporated, to operate the two original regional ECRCs. The Air Force awarded cost-plus-award-fee contracts to operate five additional ECRC sites, and justified the use of this contract type by stating that the nature of the work involved uncertain research, development, test, and evaluation

efforts. However, the effort required to perform the ECRC core functions of outreach, education and training, consultation, and technical support were not uncertain. The nature of the contracted work did not involve research, development, test, and evaluation. Cost-plus-award-fee contracts entitled the contractors to be reimbursed for all allowable costs and to receive an award fee based on contractor performance.

When the ECRC program transferred to DARPA, DARPA continued using cost-reimbursement-type contracts but awarded cost-plus-fixed-fee contracts rather than cost-plus-award-fee contracts. DARPA justified using cost-plus-fixed-fee contracts, stating that the complex technical difficulties in performing ECRC support services could not be predicted in advance. The DARPA contracting officer further justified paying contractors a fixed-fee, stating that the award fees did not provide incentive to ECRC contractors because they almost automatically received 100 percent of the award fees anyway. Therefore, it was not worth the added cost to the Government to administer award-fee-type contracts.

Opportunity to Re-evaluate Contract Type. The Deputy Under Secretary of Defense (Logistics) designated DLA as the ECRC program manager, beginning in FY 1997. As the designated ECRC program manager, DLA officials plan to continue using cost-plus-fixed-fee contracts because they believe this contract type is more appropriate for programs funded within the research, development, test, and evaluation appropriation. However, the program manager agreed with the IG, DoD, recommendation to reconsider the use of cost-plus-fixed-fee contracts because the ECRC program does not involve research, development, test, or evaluation efforts. Also, because the ECRCs have been in operation for about 6 years, DLA officials stated that they have sufficient information to clearly define ECRC contract statements of work. In the past, poorly defined statements of work allowed contractors too much autonomy and provided little incentive to the contractors. Therefore, the Deputy Under Secretary of Defense (Logistics) and DLA should consider changing the contract type from cost-plus-fixed-fee contracts to firm-fixed-price contracts. Firm fixed-price contracts provide maximum incentive for the contractor to control cost and perform effectively while minimizing the administrative burden on the contracting parties.

Contract Fees and Nonprofit Organizations. Contract fees are negotiated amounts paid to contractors in addition to all reimbursable contract costs. Fees are paid to nonprofit organizations to provide operating capital and cover non-reimbursable expenses that are ordinary and necessary to the successful operation of the organization. Further, Office of Management and Budget Circular A-122, "Cost Principles for Nonprofit Organizations," limits the use of fees to maintaining, improving, or expanding operations. Also, the Defense Federal Acquisition Regulation Supplement 215.972, "Modified Weighted Guidelines for Nonprofit Organizations," 215.972(d), states that, where the payment of fees is appropriate, contracting officers should compute the fee rate using the weighted guidelines method in Defense Federal Acquisition Regulation Supplement 215.971-1(a), which focuses on the following factors: performance risks; contract type risks; and facilities capital employed (i.e., buildings and office furniture).

Fees Paid to ECRC Contractors. DARPA paid CTC and CAMP contract fees totaling approximately \$900,000 without requiring the contractors to justify the fees to maintain, improve, or expand their ECRC operations or to provide evidence that fees were used for authorized purposes. Furthermore, in computing the fee rate, DoD contracting officials relied on what was customary for research, development, test, and evaluation contracts rather than the weighted guidelines. For CTC and CAMP, performance and contract risks were minimal because of the nature of the work involved and the contract type used. Also, facilities capital employed was not a factor for CTC and CAMP because their furnishings and equipment were provided by the Government, and their office spaces were leased.

Opportunity to Evaluate Contract Fees. The Deputy Under Secretary of Defense (Logistics) should require that DLA, as the designated ECRC program manager, review the fees paid to ECRC contractors and ensure that the fees are appropriate. To accomplish this, contracting officials should include a use of fee clause in ECRC contracts that requires contractors to justify their need for fees. As a minimum, annual fee requests should include: a description of each fee expense including an explanation of how the expenditure benefits the ECRC program, and an explanation of why the expense cannot be charged under existing cost guidelines; and a report on the use of prior year's fees. This information is needed for DoD contracting officials to determine whether fees are appropriate and used in accordance with governing regulations. Also, the Deputy Under Secretary of Defense (Logistics) and DLA officials should analyze the need for fees on an annual basis and reduce fee awards for unexpended prior year's fees.

Cost Effectiveness of ECRCs

The current emphasis within DoD and the Government is to re-evaluate processes and the way we do business, and to streamline wherever possible to be more efficient and cost-effective. Further, the expanded use of information technology capabilities throughout the Government and the private sector is helping push the implementation of EC/EDI into this infrastructure. As a result, if DoD and the Government want to assist vendors and procurement offices with this implementation effort, they need to do it in a way that efficiently achieves the goal and is cost-effective.

The following provides some perspective on the costs incurred by the ECRCs to accomplish their mission to assist vendors and Government organizations in implementing and using EC/EDI technologies. DoD obligated approximately \$81.5 million to fund the 11 regional ECRCs and the hub during FY 1994 through the first quarter of FY 1996. During that period, the ECRCs provided support to 12,764 identifiable organizations. Based on our sample, we project that about 1,102 of these organizations implemented or increased their use of

EC/EDI technologies as a result of ECRC core function support. Averaging the \$81.5 million over the 1,102 organizations, it cost DoD about \$74,000 on the average for each organization that implemented or increased its use of EC/EDI technologies.

Looking at ECRC costs another way, there are approximately 208,000 vendors throughout the United States that conduct business with the Federal Government, and 1,400 DoD procurement activities that need to use EC/EDI technologies to do business. If DoD used the 1,175 Procurement Technical Assistance Centers, Small Business Development Centers, and MEPs to train the 209,400 vendor and DoD organizations, they would each have to provide training to only 178 organizations.

Deputy Under Secretary of Defense (Logistics) and Defense Logistics Agency Redirection of the ECRC Program

As the designated ECRC program manager, DLA has the opportunity to evaluate and make the ECRC program more effective. Further, since DLA has responsibility for the Procurement Technical Assistance Cooperative Agreement program as well as the ECRC program, they need to coordinate the efforts of the two programs and eliminate duplication of effort. DLA ECRC and Procurement Technical Assistance Cooperative Agreement program officials already agreed that this is appropriate action and are forming an Integrated Process Team to minimize program overlap. In addition, since there is duplication among EC efforts performed by ECRCs, Procurement Technical Assistance Centers, MEPs, and Small Business Development Centers, the Deputy Under Secretary of Defense (Logistics) should encourage the establishment of a Government-wide Integrated Process Team to coordinate these activities to eliminate duplication and provide services in the most efficient and cost-effective manner.

Refocusing ECRC Efforts. DLA, in anticipation of receiving the program, recognized the need to refocus ECRC efforts. Some options being considered by DLA to redirect the ECRC program included tasking the ECRCs to provide more hands-on EC/EDI training, and channeling ECRC assistance to key DoD vendors. The Deputy Under Secretary of Defense (Logistics), since being delegated responsibility for the ECRC program, supports DLA efforts to redirect the program.

Provide Hands-on EC/EDI Training. DLA officials attended some training events provided by the ECRCs in anticipation of taking over the program and acknowledged that education and training core functions were not effective in getting vendors to use EC/EDI technologies to do business with DoD. The training was not effective because the ECRCs focused too much on theory and not enough on how to use EC/EDI technologies. Also, only 4 of the 12 ECRC courses focus on EC/EDI. As the designated program manager, DLA

officials plan to have the ECRCs revise their courses to provide hands-on training to teach vendors how to use EC/EDI technologies to conduct acquisition transactions.

Channeling ECRC Assistance. As the designated program manager, DLA acknowledged that ECRC efforts were not focused on the target audience. To alleviate this, DLA plans to have the ECRCs identify and assist the small- and medium-sized DoD vendors who are not using EC/EDI technology. Initially, DLA will provide the ECRCs a data base of DLA vendors and plans to provide them with similar data bases for the Military Departments to ensure that future ECRC efforts are focused on appropriate target audiences.

Other Potential ECRC Tasks. As the designated program manager, DLA officials might also consider tasking the ECRCs to perform other functions that do not duplicate the outreach and training efforts of Procurement Technical Assistance Centers, MEPs, and Small Business Development Centers already in place and working with vendors on a daily basis. For example, DLA could task the ECRCs to help the Director, DoD Electronic Commerce, with efforts to educate DoD buying activities and prime contractors in using EC/EDI technologies. In addition, the ECRCs could help small- and medium-sized vendors understand the business case and economic advantages of using EC/EDI technologies, and help them to register in the Central Contractor Registration System. DLA could also task the ECRCs to work directly with DoD and other Government agency Small and Disadvantaged Business Utilization representatives to identify and channel assistance to vendors who do business with the Government.

Establishment of Additional ECRCs

FY 1997 Congressional Guidance on ECRCs in the Defense Appropriations Act. The Conference Report accompanying the "Omnibus Consolidated Appropriations Act, 1997," provided the ECRC program an additional \$15 million specifically for the establishment and operation of five additional regional ECRCs. The final decisions on the establishment of the five ECRCs must be made within 90 days of the enactment. The Report also directed DoD to submit a plan by March 15, 1997, showing how regional ECRCs can be increasingly supported by non-governmental activities and be entirely self-sustaining in 5 years. This plan should also identify additional areas in DoD that could benefit from the use of electronic commerce technology and explain how ECRCs can be used to meet these emerging requirements.

ECRC Expansion. Based on the results of this audit, we do not believe it is advisable to expand the existing network of ECRCs at this time. The hub had not produced any solutions to vendor problems. The current ECRC mission was only 8.6 percent effective in promoting the use of EC/EDI technologies in support of acquisition streamlining initiatives. Furthermore, the Deputy Under Secretary of Defense (Logistics) and DLA officials have not had adequate time to assess or redefine the mission of existing ECRCs. DLA plans to spend the

first year as the designated program manager evaluating how to best use ECRC resources. Consistent with the Conference Committee guidance, the Deputy Under Secretary of Defense (Logistics) and DLA officials also have to devise a plan to make the ECRC program entirely self-supporting in 5 years. The Deputy Under Secretary of Defense (Logistics) and DLA need time to accomplish these objectives. Therefore, we believe that the Deputy Under Secretary of Defense (Logistics) should pursue authorization to delay establishment of the five new ECRCs to allow DLA time to redefine the ECRC mission consistent with the new congressional direction rather than have them expand the current, ineffective ECRC program.

Recommendations for Corrective Action

1. We recommend that the Deputy Under Secretary of Defense (Logistics):

a. Pursue authorization to delay establishment of the five new electronic commerce resource centers to allow the Director, Defense Logistics, time to evaluate how to best use existing resources, in accordance with the National Defense Authorization Act for FY 1997.

b. Seek authorization to eliminate the congressionally-directed technology hub.

2. We recommend that the Deputy Under Secretary of Defense (Logistics) require the Director, Defense Logistics Agency, to:

a. Prioritize electronic commerce resource center tasking to focus on getting DoD buying activities and prime contractors to use electronic commerce/electronic data interchange technologies to do business, and helping small- and medium-sized businesses understand the business case and economic advantages of using them as well.

b. Redefine the electronic commerce resource center target audience and require regional electronic commerce resource centers to focus support on Government buying activities and their suppliers.

ECRC Program Effectiveness

c. Consistent with Conference Committee guidance in the Omnibus Consolidated Appropriations Act, 1997, identify areas that could benefit from electronic commerce technology and explain how the electronic commerce resource centers can be used to meet these requirements. Specifically, consider tasking the electronic commerce resource centers to:

(1) Coordinate with the DoD procurement activities and their Small and Disadvantaged Business Utilization representatives to identify primary vendors who are not using electronic commerce/electronic data interchange.

(2) Help those vendors identified in c.(1) implement electronic commerce/electronic data interchange technologies.

(3) Help vendors register in the Central Contractor Registration System.

(4) Help the Director, DoD Electronic Commerce, train DoD buying activities and prime contractor personnel to use electronic commerce/electronic data interchange technologies.

d. Establish, and incorporate in electronic commerce resource center contracts, performance measures that accurately judge the effectiveness of electronic commerce resource center program contractors in increasing vendor use of electronic commerce/electronic data interchange technologies to conduct business with the Federal Government.

e. Select a type of contract to acquire electronic commerce resource center support that provides contractors with the greatest incentive to employ efficient and cost-effective methods and practices while minimizing Government risk.

f. Revise the contracting approach for this program to:

(1) Include a use-of-fee clause in each electronic commerce resource center contract to require contractors to justify their need for fees in accordance with criteria contained in Defense Federal Acquisition Regulation Supplement 215.972, "Modified Weighted Guidelines Method for Nonprofit Organizations," and Office of Management and Budget Circular A-122, "Cost Principles for Nonprofit Organizations." Fees should be justified on all contract actions requiring cost analysis and no less than annually. The annual fee request should include:

- (a) A description of each fee expense.
 - (b) A statement why the fee is not chargeable under existing cost guidelines.
 - (c) An explanation of how each incurred fee expense benefits the electronic commerce resource center program.
 - (d) An annual report on the actual use of prior year fee awards.
- (2) Determine whether prior year fees were used in accordance with approved fee requests, and reduce authorized fees for unexpended balances.
 - (3) Perform an annual operating cycle analysis to determine electronic commerce resource center fee needs.
 - (4) Assess alternatives to the award of fees, such as advanced funding arrangements, contractual guarantees for contingencies, providing Government facilities or equipment, or others; and use alternatives when more economical.
- g. Analyze electronic commerce resource center and Procurement Technical Assistance Cooperative Agreement program functions and coordinate electronic commerce/electronic data interchange efforts to eliminate duplication.
 - h. Establish a Government-wide electronic commerce/electronic data interchange Integrated Process Team to coordinate electronic commerce resource center activities with other Government programs having similar missions. As a minimum, the Integrated Process Team should attempt to include representatives from the Office of Federal Procurement Policy, the Department of Commerce, the Small Business Administration, the General Services Administration, the Director, DoD Electronic Commerce, the Defense Finance and Accounting Service, and the Military Departments.
 - i. Streamline the existing multi-layered electronic commerce resource center program management structure by eliminating the Institute for Defense Analyses, Production Technology, Incorporated, and the Fleet and Industrial Supply Center, and use in-house resources to accomplish their functions.
 - j. Reduce program infrastructure costs to a more reasonable level.

Management Comments and Audit Response. The Deputy Under Secretary of Defense (Logistics) did not respond to a draft of this report. Therefore, we request the Deputy Under Secretary of Defense (Logistics) to provide comments by March 12, 1997.

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Part II - Additional Information

Appendix A. Scope and Methodology

Scope

Electronic Commerce Resource Program. We reviewed records and supporting documentation for the ECRC program, valued at \$108.6 million, for the period FYs 1993 through 1996. Specifically, we evaluated strategic plans, management plans, program status reports, contract documents, congressional language, and budget and cost estimates relating to the ECRC program. We also contacted a statistical sample of ECRC customers to determine whether ECRCs had provided effective customer support and whether ECRCs were reaching their target audience. We defined effective ECRC support as any core function support that helped a vendor or Government organization implement or increase its use of EC/EDI technologies to conduct business with the Government. ECRCs defined their target audience as vendors and Government organizations that want to conduct business with the Government.

Reliance on Computer-Processed Data. We performed limited tests on the reliability of the computer-processed data provided by the ECRC program management office. We screened the ECRC data base to ensure that it included verifiable records of services to valid customer organizations. We also screened the ECRC data base to ensure that it did not include overstated records. We contacted customers to confirm that they had received the services recorded in the ECRC data base. To achieve the audit objectives, we relied on computer-processed data in the ECRC data base. Results of the data test showed an error-to-problem rate that raises questions about the validity of using the ECRC database information as a measure of program performance. However, when the data are reviewed in context with other available evidence, we believe the opinions, conclusions, and recommendations in this report are valid.

Audit Period and Standards, and Locations. We performed this program audit from September 1995 through September 1996 in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD.

Contacts During the Audit. We visited or contacted individuals and organizations within DoD, CAMP, CTC, Department of Commerce (National Institute of Standards and Technologies), General Accounting Office, Institute for Defense Analyses, Production Technologies, Incorporated, and Small Business Administration. Further details are available on request.

Statistical Sampling Methodology

The Quantitative Methods Division, Inspector General, DoD, developed the statistical sampling plan for this audit. Division personnel statistically selected

Appendix A. Scope and Methodology

the number of vendors that received assistance from the ECRCs. The statistical sampling methodology described below was used during the audit.

Audit Universe. The ECRC program management office gave the audit team a data base containing 51,594 records of ECRC core function events from FY 1994 through the first quarter of FY 1996. After screening the data base, we excluded 11,177 of the 51,594 core function events reported because they were incomplete (see Table A-1 and Appendix D). The remaining 40,417 records in the data base represent 12,764 ECRC customer organizations that received EC/EDI support from the ECRCs, which comprise the audit universe (see Table A-2).

Table A-1. Adjusted ECRC Database				
Regional ECRC	Reported Database Records	Incomplete	Verifiable	Percent of Incomplete Records
Oakland	4,919	3,658	1,261	74
Palestine	5,476	3,097	2,379	57
Scranton	6,794	2,967	3,827	44
San Antonio	3,253	730	2,523	22
Atlanta	999	121	878	12
Orange	392	21	371	5
Dayton	5,129	265	4,864	5
Fairfax	4,699	216	4,483	5
Bremerton	3,356	36	3,320	1
Johnstown	4,577	20	4,557	1
Cleveland	11,976	23	11,953	1
Unknown ¹	24	23	1	--
Total	51,594	11,177	40,417	22

Sampling Plan. We used a stratified, two-stage sample design to select ECRC customers from the audit universe. In the first stage, we categorized ECRC customers by the number of different types of events received: ECRC customers receiving only one type of core function were included in the first stratum; ECRC customers receiving two types of core functions were included in the second stratum; and so on. In the second stage, we selected a simple random sample of 25 ECRC customers from each of the 4 strata, for a total of 100 ECRC customers. However, because of the large number of nonresponses, we contacted 151 organizations to obtain the 100 responses from ECRC customers discussed in the report.

Sample Selections. Table A-2 lists the number of organizations in each stratum, the average number of core function events received, the size of each

¹Twenty-four of the 51,594 records did not identify the regional ECRC.

Appendix A. Scope and Methodology

random sample, the number of selections needed to obtain each sample size, and the number of nonresponses.

Table A-2. Sample Selections					
Stratum	Number of Organizations	Average Events	Size of Sample	Number Needed	Non-Responses
1	10,665	1.7	25	43	18
2	1,633	4.9	25	37	12
3	387	7.9	25	38	13
4	79	31.1	25	33	8
4	12,764	2.8	100	151	51

Survey Questions. We used a telephone questionnaire to collect information from 100 ECRC customers. To determine whether the ECRC support was effective, we asked the customers surveyed whether they implemented or increased their use of EC/EDI technologies as a result of the assistance received from the ECRCs. To determine whether ECRCs were supporting their target audience, we asked the customers surveyed whether they conduct business, directly or indirectly, with the Government. To determine why some ECRC customers were not using EC/EDI, we asked those who had not implemented EC/EDI, why they had not and if they planned to do so.

Sample Results. Table A-3 shows the results of the customer survey and the range of projections, including the best estimate, for the following attributes: customers who did not respond to the survey (nonresponses); customers outside the target audience; customers within the target audience, but not using EC/EDI; customers within the target audience who use EC/EDI and did not receive effective ECRC support; and customers within the target audience who use EC/EDI and received effective ECRC support.

Table A-3. Results of IG, DoD, Survey					
Attribute	Survey Sample	Lower Bound	Best Estimate	Upper Bound	Best Estimate As Percent of Total
Nonresponses	51	3,556	5,146	6,735	40.3
Outside Target	32	1,069	2,320	3,659	18.2
Target, Not Using EC/EDI	26	1,439	2,755	4,072	21.6
Target, Using EC/EDI:					
Not Effective	26	1,110	1,441	1,772	11.3
Effective	16	173	1,102	2,030	8.6
Total	151		12,764		100.0

Nonresponses. A significant number of ECRC customers could not or would not participate in the survey. We are 95-percent confident that no less than 3,556 and no more than 6,735 of the 12,764 ECRC customers, with 5,146 (40 percent) being the best estimate, would not participate in the survey. The ECRC customers surveyed did not participate because: no one answered the telephone, the telephone line was disconnected, the customer was no longer in business, the customer did not return telephone calls, or the customer refused to participate. Given the nature of the nonresponses, it is unlikely the nonresponses include a substantial number of successful EC/EDI users.

Outside the Target Audience. We are 95-percent confident that no less than 1,069 and no more than 3,659 ECRC customers, with 2,320 (18 percent) being the best estimate, do not conduct business with the Government. Consequently, DoD is incurring costs to assist a significant number of organizations from which there is no immediate benefit.

Within the Target Audience But Not Using EC/EDI. We are 95-percent confident that no less than 1,439 and no more than 4,072 of ECRC customers, with 2,755 (22 percent) being the best estimate, conduct business with the Government but do not use EC/EDI. Twenty-two percent of ECRC customers were within the ECRC-defined target audience, but did not implement EC/EDI as a result of ECRC support. However, about one-third of the 22 percent indicated that they were either implementing EC/EDI or planning to implement EC/EDI.

Within the Target Audience, Did Not Attribute Using EC/EDI to ECRCs. We are 95-percent confident that no less than 1,110 and no more than 1,772 of the ECRC customers surveyed, with 1,441 (11 percent) being the best estimate, use EC/EDI to conduct business with the Government. However, the 11 percent implemented or increased their use of EC/EDI prior to receiving support from the ECRCs and indicated that the ECRCs were not instrumental in their decision.

Appendix A. Scope and Methodology

Within the Target Audience, Attribute Using EC/EDI to ECRCs.
We are 95-percent confident that no less than 173 and no more than 2,030 of the ECRC customers surveyed, with 1,102 (8.6 percent) being the best estimate, were within the target audience and implemented or increased their use of EC/EDI because of support received from the ECRCs. As a result, only 8.6 percent of ECRC customers received effective support from the ECRCs.

Appendix B. Summary of Prior Audits and Other Reviews

The Office of the Inspector General, DoD, reports are shown below. Three reports covering issues related to the audit of the Electronic Commerce Resource Centers Program have been issued.

Inspector General, DoD

Report No. 97-007, "Department of Defense Procurement Technical Assistance Cooperative Agreement Program," October 18, 1996, concludes that the mission and service locations of Procurement Technical Assistance Centers significantly overlap those of the Small Business Development Centers. Further, both organizations provide EC/EDI outreach and education to vendors. Due to the overlap, DoD spent \$5.6 million in addition to the \$12 million authorized by Congress in FY 1995 for procurement assistance that could be provided more appropriately and efficiently by the Small Business Administration. The report recommends that the Director, Defense Logistics Agency, resubmit the initiative to repeal United States Code, Title 10, chapter 142, for the FY 1998 Defense Authorization Bill to be proposed by DoD. The report also recommends that the Director, Defense Logistics Agency, give first preference for available Procurement Technical Assistance Program (PTAP) funding to acceptable statewide applicants. The Director, Defense Logistics Agency, responded stating it requested repeal of the program for FY 1997 and the repeal was not approved. Resubmission was not planned because a repeal would have little acceptance in Congress due to the Senate and House Committees endorsing the PTAP. The Defense Logistics Agency also stated it improved the PTAP giving greater preference to statewide programs by revising applicant evaluation criteria.

Report No. 96-064, "Implementation of the DoD Management Control Program Within Special Access Programs," February 2, 1996, concludes that DARPA managers lacked the necessary management control training and did not conduct comprehensive management control reviews of DARPA programs. No recommendations were made because Office of Management and Budget Circular A-123, "Internal Control Systems," August 4, 1986, and DoD Directive 5010.38, "Internal Management Control Program," April 14, 1987, were revised to allow management flexibility in evaluating management controls.

Report No. 95-048, "Contracting Practices for the Use and Operations of DoD-Sponsored Federally Funded Research and Development Centers," December 2, 1994, assessed contractor justification and DoD analyses of fee

Appendix B. Summary of Prior Audits and Other Reviews

requirements. The report concludes that contracting officers did not limit fees to ordinary and necessary expenses, and recommends including a clause in each contract to require contractors to describe and justify fee requirements. The Director, Defense Research and Engineering, agreed and stated that review of fees was required in its management plan.

Office of the Secretary of Defense

Director, Defense Research and Engineering, study, "Comprehensive Review of the Department of Defense's Fee-Granting Process for Federally Funded Research and Development Centers," May 1, 1995, addresses the use of fees by Federally Funded Research and Development Centers, the apparent contradiction between the need for fees at some Federally Funded Research and Development Centers and the lack of a fee requirement at others, and recommendations for changing the fee structure for Federally Funded Research and Development Centers. The study supports limiting the use of fees paid to Federally Funded Research and Development Centers to reimbursement of costs that are ordinary and necessary for business operations and assessing the need for fees.

Appendix C. Funds Allocated Across ECRC Program Infrastructure

The chart presents a breakout of the \$76.7 million in funding for FYs 1994 and 1995 as allocated across the ECRC program infrastructure. A brief discussion of the responsibilities of each component of the infrastructure follows.

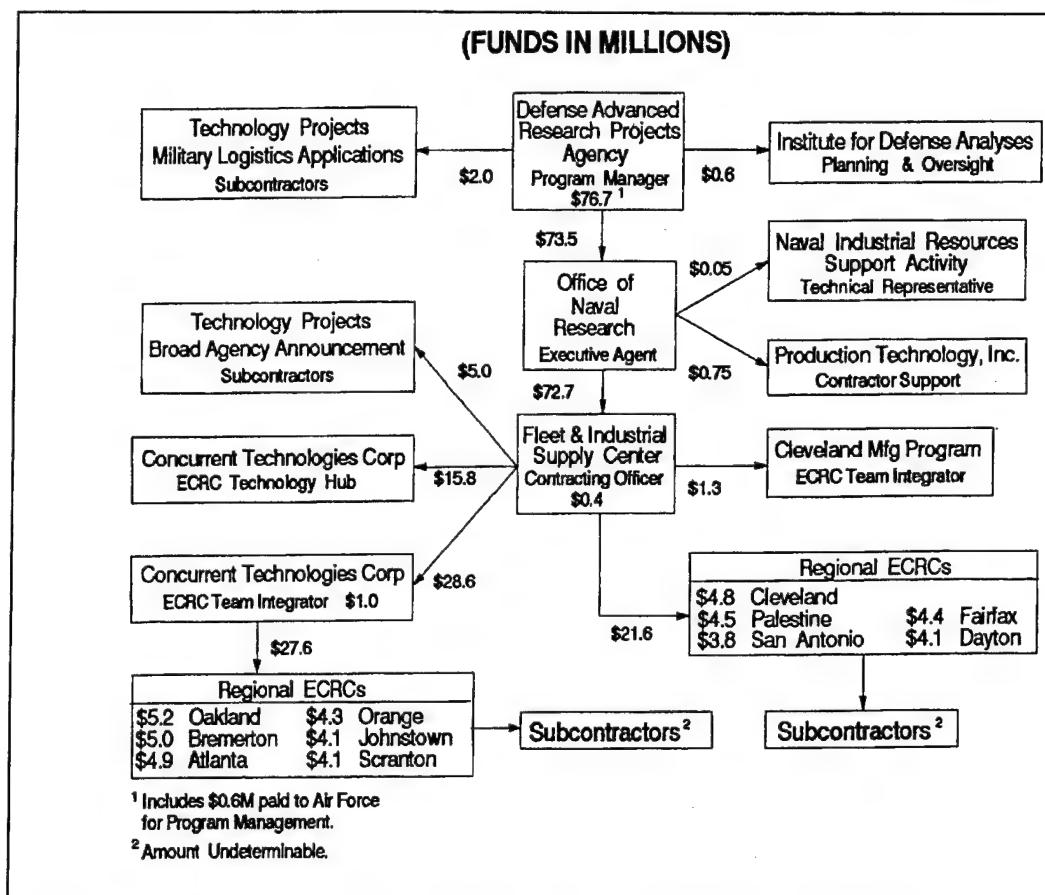


Figure C-1. Funds Allocated Across ECRC Program Infrastructure

Defense Advanced Research Projects Agency. Congress designated DARPA as the ECRC Program Manager as of FY 1994 with responsibility for overall budget authority and program control. However, according to DARPA officials, the ECRC program did not fit within DARPA's mission and was considered a priority only because of congressional interest. As a result, DARPA delegated ECRC management and oversight functions to the other organizations², and had little day-to-day involvement with the program. Of the

²The ECRC program office included DARPA, the Office of Naval Research, the Naval Industrial Resources Support Activity, and the Fleet and Industrial Supply Center.

Appendix C. Funds Allocated Across ECRC Program Infrastructure

\$76.7 million, DARPA transferred \$600,000 to Air Force to reimburse them for first quarter FY 1994 program management expenses, and transferred \$2 million to the Army and Rome Laboratories to fund technology projects. DARPA transferred the remaining \$74.1 million among the following organizations.

Institute for Defense Analyses. DARPA paid the Institute for Defense Analyses \$600,000 to strategically plan and review the ECRC program.

Office of Naval Research. Consistent with the DARPA practice of delegating contract support functions, DARPA entered into an agreement with the Office of Naval Research to act as Executive Agent for the ECRC Program. As the Executive Agent, the Office of Naval Research administered and distributed ECRC program funds and delegated program responsibilities to support activities. The Office of Naval Research received no compensation for the functions performed.

Fleet and Industrial Supply Center. The Office of Naval Research delegated contracting office responsibility to the Fleet and Industrial Supply Center to award cost-plus-fixed-fee ECRC contracts and to perform post-award contract administration functions. Delegating contracting responsibilities is a normal practice for the Office of Naval Research. The Fleet and Industrial Supply Center received \$400,000 to conduct these functions.

Naval Industrial Resources Support Activity. The Fleet and Industrial Supply Center delegated Contracting Officers' Technical Representative responsibilities such as providing technical direction and guidance to the contracting officer, and monitoring services performed under the ECRC contracts, to the Naval Industrial Resources Support Activity. The Naval Industrial Resources Support Activity received approximately \$50,000 to cover travel expenses for the Contracting Officers' Technical Representative.

Production Technology, Incorporated. Because the Naval Industrial Resources Support Activity had no in-house staff for such purposes, the Office of Naval Research paid Production Technology, Incorporated, \$750,000 to perform Contracting Officers' Technical Representative functions such as technical reviews of contract deliverables and preparing ECRC activity reports.

Team Integrators. Congress directed DoD to award sole-source contracts to CTC and CAMP as ECRC team integrators to coordinate, plan, and oversee the activities of the regional ECRCs with direction from the ECRC program office.

Concurrent Technologies Corporation. CTC, a not-for-profit organization, headquartered in Johnstown, Pennsylvania, has direct contract award authority as well as management and oversight responsibility for six regional ECRCs. Three of the six regional ECRCs are operated by CTC employees with subcontractor support. The remaining three ECRCs are operated entirely by subcontractors. CTC retained \$1 million to pay for team integrator functions.

Appendix C. Funds Allocated Across ECRC Program Infrastructure

Cleveland Advanced Manufacturing Program. CAMP, a not-for-profit organization, located in Cleveland, Ohio, coordinated activities for five ECRCs, however, CAMP did not have contract award authority or direct management responsibility for these ECRCs. Funding for the CAMP ECRCs flowed through the Fleet and Industrial Supply Center, which competitively awarded the contracts for operation of the regional ECRCs. Like CTC, CAMP obtained direct contract award, and management and oversight authority for its regional ECRCs when the program shifted to the Deputy Under Secretary of Defense (Logistics) in FY 1997. CAMP retained \$1.3 million to pay for team integrator functions.

Regional ECRCs and Subcontractors. The two regional ECRCs use subcontractors to accomplish their mission. Each ECRC is required to form a partnership with a not-for-profit organization (such as a university) to accomplish its mission. For example, the Fairfax ECRC, which is operated by Dimensions International, Incorporated, formed partnerships with two subcontractors: Iris, Limited Liability Partnership; and George Mason University. Iris and George Mason perform ECRC functions for Dimensions including providing outreach, education, and training. In addition, the Fairfax ECRC collaborated with the local Small Business Development Center and Manufacturing Extension Providers to accomplish outreach. As another example, the Atlanta ECRC is jointly operated by Georgia Tech University and Clark Atlanta University. Of the \$49.2 million paid to the regional ECRCs, we were unable to separately identify funds retained by the 11 ECRCs and funds paid to subcontractors.

Appendix D. Reliability of ECRC Activity Metrics

ECRC Use of Activity Metrics. The ECRCs use activity metrics to measure the effectiveness of the ECRC program. Activity metrics are the number of core function events (instances of outreach, education and training, consultation, and technical support) the 11 regional ECRCs accomplished during a given period. In December 1995, we requested a consolidated data base of regional ECRC activity metrics from the beginning of FY 1994 through the first quarter of FY 1996. The team integrators and the ECRC program office took almost 3 months to provide the requested information. In March 1996, the ECRC program office provided 11 data bases of core function events conducted by the 11 regional ECRCs. We consolidated the data bases and counted 51,594 ECRC core function events during the 27 month-period, over 1,900 events per month.

Reliability and Effectiveness of ECRC Activity Metrics. To determine the reliability of ECRC activity metrics, the Inspector General, DoD, Audit, screened the 51,594 records to ensure that each record included sufficient information to verify the reported event with the customer organization. To determine the effectiveness of ECRC core functions, we questioned a statistical sample of ECRC customers concerning the ECRC support they received. Effective ECRC support consisted of one or more core function events that helped a customer organization implement or increase its use of EC/EDI technologies to conduct business with the Federal Government.

Incomplete Records. We determined that 11,177 of the 51,594 records, or 21 percent, were not complete because they did not identify the organization, describe the event, or indicate the core function provided. Three ECRCs (Oakland, Palestine, and Scranton) accounted for 87 percent of the incomplete records. The remaining 40,417 records were verifiable in that they contained sufficient information to test the accuracy of reported activity metrics.

Overstated Events. We determined that 9,464 of the 40,417 verifiable records, or 23 percent, were overstated. We maintained that ECRC customer organizations received only one core function event per day, and therefore, multiple core functions per day were considered to be overstatements. We tested the 40,417 verifiable records for duplication and found that identical records were entered more than one time, and instances where the ECRCs claimed more than one core function event for the same recipient on the same date. For example, an ECRC reported that 36 East Ohio Gas Company employees attended 4 events each on August 9, 1994. The ECRC reported 144 records for this incident (36 employees x 4 events). According to East Ohio Gas Company, the ECRC conducted one seminar on that date for 20 company employees. Although the ECRC received credit for 144 events (records), it should have only recorded 1 event. Two ECRCs (Fairfax and Cleveland) accounted for 74 percent of the overstated records. Outreach, consultation, and education events comprised 97 percent of the

Appendix D. Reliability of ECRC Activity Metrics

overstated records. Overall, 40 percent of the ECRC data base records were incomplete or overstated, therefore, only 60 percent of the records were reliable for audit purposes.

Table D-1 shows the number of reported, incomplete, verifiable, overstated, and remaining ECRC data base records.

Table D-1. Reliability of ECRC Activity Metrics						
Regional ECRC	Reported Database Records	Incomplete	Verifiable	Over- Stated	Remaining Records	Percent of Remaining Records
Oakland	4,919	3,658	1,261	99	1,162	24
Palestine	5,476	3,097	2,379	299	2,080	38
Fairfax	4,699	216	4,483	2,611	1,872	40
Scranton	6,794	2,967	3,827	127	3,700	54
Cleveland	11,976	23	11,953	4,425	7,528	63
Bremerton	3,356	36	3,320	883	2,437	73
San Antonio	3,253	730	2,523	87	2,436	75
Atlanta	999	121	878	4	874	87
Dayton	5,129	265	4,864	403	4,461	87
Johnstown	4,577	20	4,557	522	4,035	88
Orange	392	21	371	4	367	94
Unknown	24	23	1	0	1	--
Total	51,594	11,177	40,417	9,464	30,953	60

Evaluation of ECRC Effectiveness. We contacted a statistical sample of 151 ECRC customer organizations to determine the effectiveness of ECRC core functions. Specifically, we asked each customer whether an ECRC had helped them implement or increase their use of EC/EDI technologies to conduct business with the Government. A third of the ECRC customers in the survey could not be reached by telephone or refused to participate. We determined, with 95-percent confidence, that about 1,102 of the 12,764 ECRC customers, or 8.6 percent, received effective ECRC support. See Appendix A for a discussion of sample selection methods and a detailed discussion of survey results.

Evaluation of ECRC Targeting. According to the ECRC Operational Plan, dated March 22, 1995, the ECRC target audience consisted of small-to-medium-sized enterprises that conduct business with the Government. To determine whether ECRCs were supporting their target audience, we asked each ECRC customer if they conducted business with the Government, with or without EC/EDI technologies. We determined, with 95-percent confidence, that 2,320 of 12,764 ECRC customer organizations, about 18 percent, were outside the ECRC-defined target audience. Of the 100 ECRC customers responding to the survey, 68 were within the ECRC-defined target audience and 32 were not. Although 5 of the 32 respondents had implemented or increased their use of EC/EDI as a result of ECRC support, the 5 did not conduct business

Appendix D. Reliability of ECRC Activity Metrics

with the Government; therefore, we did not include them with the number receiving effective ECRC support. Figure D-1 shows the distribution of the 100 survey respondents within and outside the target audience.

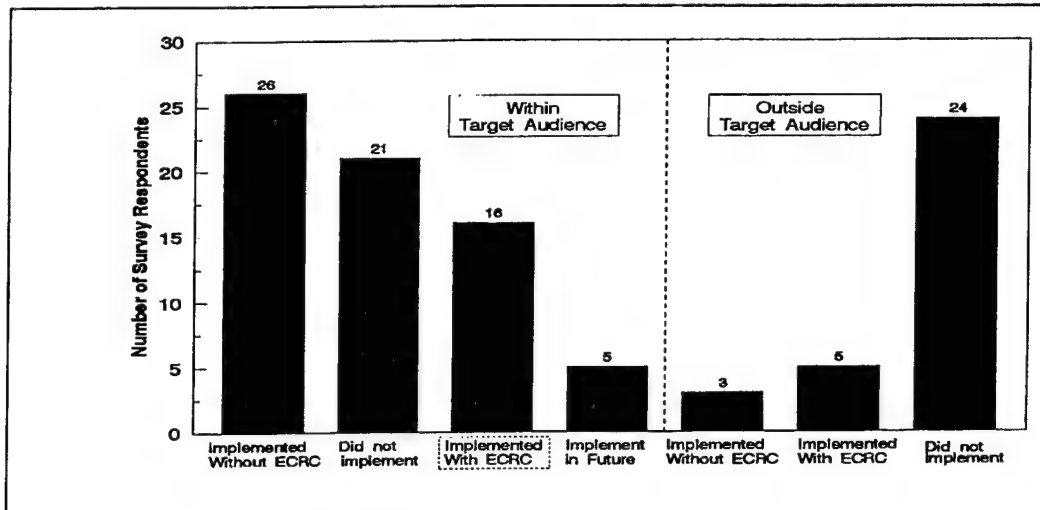


Figure D-1. ECRC Targeting

Unclear Definition of Target Audience. The DARPA ECRC program manager provided guidance to regional ECRCs to define their target audience. Specifically, the program manager stated that the target audience is the "future integrated commercial-defense industrial base that DoD acquisition reform and dual use initiatives are opening as a future source of supply." This definition is unclear and very broad, thus not ensuring that ECRC resources were focused on the appropriate target audience. The Deputy Under Secretary of Defense (Logistics) and DLA officials need to clearly identify a target audience that will result in the most efficient, cost-effective use of ECRC resources.

Confirmation of Testing Results. In January 1996, as a subtask of the instructional technology development initiative, the ECRC technology hub completed a study of the adequacy of ECRC training courseware. The study included an analysis of the impact of training provided by the regional ECRCs on the business practices of training recipients. The study concluded that, although ECRC training courses helped vendors learn about EC/EDI, the training did not result in significant vendor implementation of EC/EDI technologies. Of the vendors surveyed by the hub, 83 percent thought the training was useful, but only 10 percent of them used EC/EDI to conduct business with the Government after attending the training. The study also concluded that ECRC data bases contained inaccurate and duplicate data. Some ECRC class counts reported in the data bases "included everyone who intended to attend the class, and not actual attendees."

Appendix E. Reliability of ECRC Impact Metrics

ECRC Use of Impact Metrics to Measure Program Effectiveness. The ECRCs also use impact metrics to measure the effectiveness of the ECRC program. Impact metrics are customer success stories and business case analyses that chronicle the economic benefits gained from ECRC customers implementing EC/EDI technologies because of ECRC support. Eight of 11 ECRCs reported 239 success stories between FY 1994 and the first quarter of FY 1996, about 9 success stories a month.

Reliability and Validity of ECRC Impact Metrics. To determine the reliability of ECRC impact metrics, we tested all 239 success stories for completeness and compliance. Tests of completeness ensured that each success story included adequate information about each ECRC customer. Tests of compliance ensured that each success story complied with the definition of success, according to the ECRC statement of work, dated September 29, 1995, and involved an organization within the ECRC target audience.

Tests of Reliability. We reviewed all 239 documented success stories provided by the 8 of the 11 regional ECRCs for completeness and compliance.

Tests of Completeness. We reviewed all 239 success stories provided by the regional ECRCs to determine whether we could identify the ECRC customer, the support received, economic benefits gained, need for EC/EDI technologies, and the role of the responsible ECRC. Half of the 239 success stories were not documented and thus were incomplete. Three ECRCs (Fairfax, Dayton, and San Antonio) accounted for all but one of the incomplete success stories.

Tests of Compliance. We reviewed all 119 complete success stories to determine whether the ECRC customers implemented EC/EDI technologies with the help of an ECRC and conducted business with the Government. We did not attempt to quantify the economic benefits gained by the ECRC customer due to lack of documentation. We determined that 31 of the 119 success stories, or 26 percent, involved valid implementations of EC/EDI technologies for the purpose of conducting business with the Federal Government. The remaining 88 success stories were not valid because the customers either did not implement EC/EDI technologies, or did not conduct business with the Federal Government. Overall, 31 of 239 ECRC success stories, or 13 percent, were not reliable.

Appendix E. Reliability of ECRC Impact Metrics

Table E-1 shows, by region, the results of our analysis of ECRC impact metrics (success stories).

Regional ECRC	Reported Impact Metrics	Incomplete	Complete	Not Compliant	Reliable	Reliable as Percent Reported
Dayton	33	33	0	0	0	0
Oakland	0	0	0	0	0	0
Orange	0	0	0	0	0	0
San Antonio	28	28	0	0	0	0
Scranton	0	0	0	0	0	0
Johnstown	26	0	26	24	2	8
Palestine	37	1	36	31	5	14
Cleveland	34	0	34	23	11	32
Atlanta	6	0	6	4	2	33
Fairfax	62	58	4	2	2	50
Bremerton	13	0	13	4	9	69
Total	239	120	119	88	31	13

Tests of Validity. We judgmentally contacted 10 of the 119 customers from the complete success stories to determine whether their success stories were valid. We reviewed ECRC support documentation and interviewed company officials. Success stories were valid success stories if the customer implemented EC/EDI technologies to conduct business with the Government and received productive support from an ECRC. We determined that only 3 of the 10 customers were valid success stories. Therefore, the success stories did not accurately reflect the effectiveness of ECRC core functions.

Valid Success Stories. We considered the following success stories to be valid because the customers implemented EC/EDI technologies to do business with the Government.

Laurel Technologies, Incorporated. Laurel Technologies designs and manufactures shipboard display systems for commercial and Government use. From March 1994 through February 1995, the Johnstown ECRC provided more than 1,000 free hours of support to help Laurel Technologies develop and implement an on-line communication system. As a result of the Johnstown ECRC support, Laurel Technologies is able to electronically transfer engineering files to a DoD prime contractor, improve customer service, and reduce paperwork.

D-Bolt Company, Incorporated. The D-Bolt Company distributes metal fasteners to the steel industry and to Government subcontractors. The Johnstown ECRC helped the D-Bolt Company implement

Appendix E. Reliability of ECRC Impact Metrics

EDI and improve customer service. As a result of the Johnstown ECRC support, D-Bolt Company won several commercial contracts and is better positioned to electronically pursue more Government business.

Digital Imaging of Oviedo, Florida. The company develops state-of-the-art infrared imaging systems for military and commercial uses and markets video products through an affiliated company. The Atlanta ECRC provided Digital Imaging with four hours of support to evaluate EDI software. As a result of the Atlanta ECRC support, Digital Imaging purchased EDI software and implemented EDI through its affiliated company.

Invalid Success Stories. We considered the following success stories to be invalid because the customers did not implement EC/EDI technologies to do business with the Government.

All Water Systems. All Water Systems designs, sells, and services high-purity water filtration systems for commercial and Government use. All Water Systems contacted the Johnstown ECRC in November 1995 to become EC/EDI compatible and establish an electronic catalog. The Johnstown ECRC provided All Water Systems with technical support to develop a data management conversion plan and demonstrate potential EC/EDI solutions. The Johnstown ECRC described All Water Systems as a success because the company was "implementing EDI/Legacy Data Management technologies in the first and second quarter of 1996." As of June 1996, All Water Systems had upgraded its computer equipment and planned to purchase EC/EDI software in the near future. However, All Water Systems had not implemented EC/EDI to do business with the Federal Government as reported by the regional ECRC.

Jet Aerospace, Incorporated. Jet Aerospace manufactures precision machine components for a DoD prime contractor. In FY 1995, the Johnstown ECRC provided Jet Aerospace with 20 hours of EC/EDI support to develop price quotes and process purchase orders. The Johnstown ECRC described Jet Aerospace as a success because the company was "implementing EDI in the first quarter of 1996." As of June 1996, Jet Aerospace had not implemented EDI, but credited the ECRC for preparing the company to do so in the future.

Dynamic Design Engineering. Dynamic Design Engineering provides consulting and engineering services but does not conduct business with the Government. In August 1995, the company received training from the Johnstown ECRC to learn about business opportunities with DoD through EDI. The Johnstown ECRC subsequently reported the company was "implementing EDI (in early) FY 1996." According to the company's President, the company implemented EDI prior to contacting the ECRC and did not benefit from the ECRC support.

Tranzonic Companies. Tranzonic Companies manufactures non-electronic hospital and safety supplies but does not conduct business with the Federal Government. The Cleveland ECRC provided Tranzonic Company with 24 free hours of manufacturing and marketing

Appendix E. Reliability of ECRC Impact Metrics

assistance, but no EC/EDI support. The Cleveland ECRC claimed success for helping Tranzonic "enter a new market and position itself with a significant competitive advantage over any existing product on the market." According to the company's Vice President, the company has not implemented EC/EDI or benefitted from the ECRC's manufacturing and marketing support.

Youngstown Forge, Incorporated. Youngstown Forge produces forged steel and alloy products, but does not conduct business with the Federal Government. The Cleveland ECRC provided the company with 4 free hours of support, then included the company on its list of success stories because it was actively seeking DoD business. According to the company's President, Youngstown Forge has not made the investment to implement EDI but is working toward doing so, and hopes to do business with the Federal Government.

The Supply Room. The Supply Room sells office supplies to commercial and Government organizations using non-EC/EDI methods. In 1995, the company received an hour and a half consultation from the Fairfax ECRC to discuss EDI software applications and potential trading partners. Although the company successfully implemented EC/EDI to do business with the Federal Government, they implemented EDI prior to receiving support from the Fairfax ECRC, and discontinued using it in April 1996 because it was not cost effective.

Rayco Supply Company. Rayco Supply Company provides industrial marine products to DoD and requested EC/EDI assistance from the Fairfax ECRC. The company received 4 hours of support from the Fairfax ECRC to "become EDI literate," and in selecting a Value Added Network. According to a Rayco Supply official, they attributed their implementation of EC/EDI to a third party vendor, and not to the support received from the Fairfax ECRC.

Appendix F. Technology Hub Initiatives

The Hub undertook 15 initiatives during FYs 1995 through 1996 to accomplish its mission to identify and deploy new and existing EC/EDI technologies to help vendor and Government organizations implement and increase their use of EC/EDI to do business. A technical expert from the Office of the Inspector General, DoD, performed a review of the 15 Hub initiatives to determine the extent to which the initiatives benefited DoD. The technical reviewer concluded that the initiatives did not identify solutions to vendor and Government organizations' impediments to using EC/EDI technologies. Four of the 15 initiatives (3 CALS Expo initiatives and the Collaborative Application Protocol Development Initiative) are discussed in Part I of the report. A brief discussion of the remaining 11 initiatives follows.

Implementation Planning for the National ECRC Technology Hub. This initiative provided for establishment of the hub and developing implementation plans for hub initiatives. The budget for this initiative was \$378,654. The initiative ended with the successful planning for establishment of the hub in FY 1995.

Electronic Commerce Testbed Initiatives. There were two testbed initiatives; one in FY 1995, and one in FY 1996. The FY 1995 initiative established the Hub facility at CTC to provide the ECRC program with capabilities to evaluate, demonstrate, and validate new technologies, and put them into usable products for vendors. The FY 1996 initiative continues hub efforts to evaluate, demonstrate, and validate new EC/EDI technologies. The budgets for these initiatives were about \$4.5 million in FY 1995, and \$2.7 million for FY 1996. According to DARPA ECRC program office officials, the testbed is of no benefit to the ECRC Program because the initiatives undertaken by the hub do not focus on vendor EC/EDI needs and are too technical. The IG, DoD, technical review concurred with the DARPA ECRC program office that there is no need for the Electronic Commerce Testbed Initiatives because the vendor technology needs have not been identified.

ECRC Technology Hub Activities Initiative. In addition to the development of a World-Wide Web Home Page³ and the EC/EDI technical information repository, this initiative includes identifying technology gaps that cannot be met with existing or emerging technologies, and the development and printing of ECRC brochures and newsletters. The budget for this initiative is \$505,687. This initiative duplicates the mission requirement for regional ECRCs to identify technology gaps preventing vendors and Government organizations from using EC/EDI technologies. In addition, many software and hardware developers and integrators invest significant resources to identify and fill technology voids. The brochures, newsletters, and related ECRC marketing materials are of

³The ECRC World Wide Web site address is: <http://www.ecrc.ctc.com>.

Appendix F. Technology Hub Initiatives

questionable benefit because they have not resulted in an appreciable increase in the use of EC/EDI to conduct business with DoD, and should not be funded under the hub.

Instructional Technology Development Initiative. This initiative is to evaluate and standardize the ECRC training curriculum, identify new training techniques, prioritize the training provided, and establish competency levels for persons receiving training. The FY 1995 budget for this initiative was \$951,720. ECRC program office officials consider part of this initiative to be useful; specifically, the instructional needs assessments. However, we question the appropriateness of this being a hub initiative since it duplicates requirements in regional ECRC and team integrator missions. Specifically, team integrators are required to combine the individual needs of the ECRCs and use that information to develop a coordinated ECRC training plan. Also, since regional ECRCs interface with vendors and DoD organizations, they are in the best position to identify gaps in ECRC training.

Knowledge Transfer Initiative. This initiative continues the Instructional Technology Development Initiative of FY 1995. The objective is to conduct instructional needs assessments and provide courseware configuration management. The FY 1996 budget for the Knowledge Transfer Initiative is \$300,000. The Instructional Technology Development Initiative was scaled back in FY 1996 eliminating the evaluation and demonstration of advanced training tools. The Knowledge Transfer Initiative was determined to be ineffective in promoting DoD EC/EDI goals and objectives. Also, this initiative duplicates the requirement in the statement of work for the regional ECRCs and team integrators to assess vendor and Government training needs.

Collaboration with NIST, CALS Industry Steering Group (CALS ISG), and U.S. Product Data Association. The objective of this initiative is to maintain close working relationships with:

- o the National Institute of Standards and Technologies National Advanced Manufacturing Testbed in developing engineering technologies promoting EC.

- o the CALS Industry Steering Group to assure cooperation in achieving common goals such as outreach, education and training, and dissemination of information to CALS Industry Steering Group members;

- o the U.S. Product Data Association in the area of product data exchange using U.S. Product Data Association as a vehicle to deploy technology developed by the hub.

The budget for this initiative is \$500,890. The ECRCs are to provide frequent reports to assure wide dissemination of the results of these liaisons, but to no specified audience and for no specified purpose. This initiative appears to serve no purpose that is of benefit to the Federal Government because it does not accomplish the hub mission to develop and deploy EC/EDI technologies.

Appendix F. Technology Hub Initiatives

EDI Integration. The objective of this initiative is to identify software tools, and provide guidelines to enable vendors to integrate American National Standards Institute X12 (ANSI X12) EDI transaction sets with their internal application software. The budget for this initiative is \$431,041. Specifically, this initiative was to identify a cost-effective, easy method for vendors to read data that is in ANSI X12 format directly into their existing internal systems. According to an official from the Microsoft Technical Information Department, Development Tools and Languages Group, many unique translation software packages exist, but there is no one product that will interface all internal application software packages with ANSI X12. Because internal application software is unique to each vendor, and translation software packages are limited to unique algorithms, each vendor would have to build or adapt software interfaces compatible with their respective internal application software. Therefore, there is no single solution to accommodate all of the possible combinations of internal software packages. As a result, the hub initiative is not practical. Also, the major application software developers are building ANSI X12 translation capabilities into their products. For example, Microsoft and Word Perfect software packages already accommodate importing and exporting text in ANSI X12 formats. Since software developers are embedding ANSI X12 translators in their products, this initiative is not necessary.

EC In Support of Shipyards. The objective of this initiative, identified by the Contracting Officer's Technical Representative, is for the hub to enhance and maintain an electronic communications network, NSnet, that is being developed under the MARITECH program for the maritime community. The NSnet is to become the maritime industry's infrastructure for performing EC and communications. The budget for this initiative is \$1,000,000. The Hub will also develop scenarios and demonstrations of EC technologies, and provide outreach, education, and training to promote EC in the shipbuilding industry. According to the technical reviewer, the premise here is that the principle shipbuilding customer, the Navy, will develop an EC requirement, then the shipbuilding industry will receive help in developing the capability to meet the new requirement. However, it is unlikely that the Navy has not recognized a need for EDI and developed a shipboard EC requirement on its own. While the focus of this initiative is at least DoD-related, it is not necessary.

Collaborative Tools for Near-Net Shape Manufacturing. Forging, casting, and powder metallurgy manufacturing are classified as near-net shape processes. This initiative integrates EC technologies into the National Center for Excellence in Metalworking Technology initiatives, also operated by Concurrent Technologies, Corporation. The budget for this initiative is \$750,000. The objective is to create a virtual enterprise environment for Near-net shape manufacturers for demonstration at the FY 1996 CALS Exposition. According to the technical reviewer, neither DoD nor the Government should be pushing the development of particular STEP Application Protocols. DoD should let the marketplace decide on this issue. Also, this initiative does not accomplish the Hub mission because it is not relevant to the majority of vendors.

Manufacturing Product Data Standards Initiative. This initiative focused on defining, developing, and implementing STEP application protocols in near-net shape parts manufacturing processes. The budget for this initiative was about

Appendix F. Technology Hub Initiatives

\$1.6 million. According to ECRC program officials, this initiative was of no benefit to DoD because it was not applicable to the majority of vendors and focused on manufacturing processes rather than EC/EDI. Our technical reviewer concluded the same. STEP is only one of the product data standards in the marketplace and is not the most heavily used of its type; the Initial Graphic Exchange Specification is more common. Both standards require the development of application protocols in order to be used in specific industrial processes. However, there is no need for DoD to sponsor this effort because the marketplace has produced numerous different interchange standards, and DoD should let the marketplace decide. This initiative was discontinued in FY 1995. However, the concepts are being pursued in FY 1996 under the "Collaborative Tools for Near-Net Shape Manufacturing" initiative.

Appendix G. Report Distribution

Office of the Secretary of Defense

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Deputy Under Secretary of Defense (Logistics)
Under Secretary of Defense (Comptroller)
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Department of the Army

Auditor General, Department of the Army

Department of the Navy

Assistant Secretary of the Navy (Financial Management and Comptroller)
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Commander, Office of Naval Research

Department of the Air Force

Assistant Secretary of the Air Force (Financial Management and Comptroller)
Assistant Secretary of the Air Force (Acquisition)
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Appendix G. Report Distribution

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Director, Defense Information Systems Agency
Director, Defense Logistics Agency
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Senate Committee on Governmental Affairs
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House Subcommittee on National Security, Committee on Appropriations
House Committee on Government Reform and Oversight
House Subcommittee on National Security, International Affairs, and Criminal
Justice, Committee on Government Reform and Oversight
House Committee on National Security

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